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Drought and Upstream Growth Sow Grain of Uncertainty in the Lower Colorado River Basin

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Drought and Upstream Growth Sow Grain of Uncertainty in the Lower Colorado River Basin

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Drought and Upstream Growth Sow Grain of Uncertainty in the Lower Colorado River Basin

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Cheap water, massive federal subsidies and political clout have sustained rice farming in the lower Colorado River basin for decades, but now the industry is in a precarious situation. Drought, population growth upstream and economic boom in Austin are pushing out the practice because of increasing demand for Texas' scarce water resources.

The tightening supply of water raised questions about the sustainability of producing such a water intensive crop in the state. Drought has cut off the cheap water to farmers for three years, and a mobilized coalition of upper river basin interests is calling for a permanent end to subsidized water. It's increasingly clear that the politics of water in a drought-prone future is likely to side with cities, where voters are heavily concentrated.

Rice farmers have scrambled to adapt. Larger rice farms have switched to groundwater. Some farmers have swapped rice for corn, milo or soybeans to keep their income. Crop insurance, which made up for at least 55 percent of the money lost in drought, softened the blow for rice farmers. But revenues in rice-related industries in Wharton, Matagorda and Colorado counties have dropped sharply and some businesses have already packed it in.

These new realities cast uncertainties throughout the lower river basin, where locals fear this way of life is disappearing.

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On a sunny day in March 2014, Timothy Gertson's black, 2011 Dodge Ram barreled down the gravel road that cuts through the fields just outside of Lissie, Texas, where his family has grown rice since 1910.

Gertson, 29, joined the family farm business in 2008 after graduating from Texas A&M and working in an engineering firm for a year. He doesn't regret the decision, but that doesn't stop him from worrying, he said.

"I think frequently—probably every day—what I would do if I couldn't farm rice anymore," he said. "I could probably find a job in engineering, maybe, but the fulfillment wouldn't be there."

Cheap water, generous federal subsidies and political clout have kept rice farmers' way of life alive along the Colorado River, propping up an industry that otherwise might not be competitive in the global rice market.

Persistent drought and population growth upstream on the Colorado have cut off the cheap water for now. The rice farmers' political influence has ebbed because of the economic force and sheer number of people upstream. And a recent federal policy change curtailed some subsidies to the farmers.

Before drought and the water cutoff to farmers, an estimated 500 farmers in the region planted a combined 100,000 acres of rice. Now, that's down to about 50,000 acres, according to the Wharton County Texas A&M Agrilife Extension office.

Rice farmers who could afford it—about one third of a couple hundred farms, including the Gertson's—have installed costly irrigation wells to keep rice growing without water from the river. The rest have switched to less water-intensive crops like corn and grain sorghum or turned the land to pasture. Farmers without wells will likely pack in their rice business if the cheap water doesn't return.

“People are trying to make it work, but installing wells is just not something that everyone can afford to do,” Gertson said.

When there’s enough water, the farmers use about 450,000 acre-feet a year—enough to fill 225,000 Olympic swimming pools and roughly twice what all the people and businesses upstream use each year.

The Lower Colorado River Authority, the state agency that controls water in the Colorado basin, issued an emergency order in 2011 to halt water releases to farmers because the lakes that feed the river downstream were threatening to run dry. Most rice farmers along the river have not received water since 2012.

By 2011, exceptional drought in the Hill Country and much of the state had ravaged the Highland Lakes. Inflows to the lakes were the lowest on record that year, and water levels in Lake Buchanan and Lake Travis, of the seven Highland Lakes, plummeted to less than 40 percent capacity. The area received fewer than 17 inches of rain in 2011, compared with 15 inches in 1955 during the drought of record, according to the U.S. Drought Monitor. Central Texas receives about 34 inches of annual rainfall in a normal year, according to the National Climatic Data Center.

Conditions haven’t improved much since then. Lake Travis and Lake Buchanan were 37 percent full as of April 2014. The year is starting out with less rainfall than in 2011, and climate change is expected to create more intense periods of drought in the future, according to the state climatologist.

Without healthy water inflows to the lakes, LCRA data show that the agency could supply water to its firm customers—municipalities and industries—for another three years. That period would shrink to a year and a half if downstream farmers received the amount of water they received in 2010, according to the data.

“If we didn’t receive any water to the lakes, we would cut back firm customers to buy more time before letting the lakes dry,” LCRA spokesperson Clara Tuma said.

In March 2014, the authority moved a step forward on a Wharton County reservoir project that would capture up to 90,000 acre-feet of water downstream from Austin. An acre-foot is what roughly three households use each year.

Nothing in the contracts for the proposed reservoir delegates water to farmers, and a coal plant in nearby Matagorda has vied for LCRA water in the past, offering to pay higher rates than farmers.

These new realities cast uncertainties throughout the lower river basin, where locals fear this way of life is disappearing.

“It’s fear of the unknown. Is it really going to come back? I just don’t think so, I really don’t,” said Mike Lanier, 55, a former public school superintendent who lives in Colorado County.

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Gertson’s truck slowed to a stop when he arrived at one of the many man-made canals in this area that, until three years ago, delivered billions of gallons of water from Lake Buchanan and Lake Travis.

Rice farmers have argued that their livelihoods are written into the history of the Highland Lakes and LCRA.

“The two principle interests that brought the LCRA to being were the people who were interested in stopping the horrible floods that had been plaguing the Hill Country, including Austin, and the rice farmers downstream looking for a secure source of water,” said Andrew Sansom, a water historian at Texas State University.

In the early 1900s, farmers dug canals to carry water from the river to their fields, but fluctuating river flows meant inconsistent crops. The arid West Texas climate where the Colorado River begins slowed the river to a trickle some years. Storm runoff in the Hill Country caused devastating floods in Austin and communities downstream.

Farmers had no electricity. Towns in Central Texas ran on small, insufficient generators. To catch some of the customers, a Chicago utility company began construction on the dam that would later become Lake Buchanan. The project was abandoned when the company went bankrupt in 1931, according to the LCRA website.

Alan Wirtz, a Colorado County politician and lawyer, drafted legislation in 1933 to establish the LCRA and finish the damn. In 1934, after three failed attempts, the Legislature created the LCRA, according to the authority's website.

In its first 15 years, the LCRA built six of the seven Highland Lakes (the city of Austin built the seventh in 1960, now known as Lady Bird Lake) to provide electricity for the growing population in Central Texas and mitigate flooding. Rice farmers at the time had lobbied for the dams.

Back then, a few rice-farming families owned and maintained a system of canals and three private irrigation districts—Garwood and Lakeside in Colorado County and Gulf Coast in Matagorda County. An irrigation district is an organization that obtains water and distributes it to people within a certain area for irrigation of their land. They had rights to divert water from the Colorado and deliver it to other rice farmers, according to Ron Griffin, an agricultural economist and water policy expert at Texas A&M University.

In the 1960s, the LCRA bought the infrastructure and associated water rights to the Gulf Coast irrigation district. In 1989, the agency bought the infrastructure and water rights to Lakeside Irrigation District in Eagle Lake.

When the first districts were sold, the infrastructure was believed to have more value than the water rights, Griffin said.

“What happened over time is the value of the infrastructure didn’t go up, but you saw something momentous happening with water,” Griffin said.

Population upstream was rapidly expanding. In 1960, 186,544 people lived in Austin. That number had doubled by 1983, and in 1989 the city was home to 466,499 people, according to U.S. census data.

The growth added demands on the lakes and prompted the city of Austin to take the LCRA to court in 1988 to secure its drinking water supply. After a long series of negotiations among the city, the LCRA and the Texas Water Commission, a Bell County judge decided the LCRA would have the right to use 1.5 million acre-feet of water from the river and lakes a year, according to the 1989 LCRA water management plan.

The plan established that 500,000 acre-feet, about 250,000 Olympic pools, could be sold from the lakes. Cities, towns and industries agreed to pay a premium for a guaranteed water supply and were called firm customers. Water was sold to firm customers first, and whatever was left over could be sold to interruptible users, who paid lower rates, according to the plan.

In 1998, the LCRA purchased the remaining irrigation company, Garwood, for $75 million, Griffin said. The Garwood Irrigation District held the most senior water rights on the river, which allowed the district to divert 168,000 acre-feet of water from the river each year, according to the LCRA. The LCRA received the senior water rights in the deal.

The contract for that deal stated that agricultural users would maintain the lower interruptible rates. It designated Garwood customers “interruptible users,” but negotiated

a reliable source of water. That district still receives water today, despite the drought emergency order and the cutoff to the other two irrigation districts.

“Garwood is an interruptible customer, but they are continuing to receive a limited amount of water now because of terms in LCRA’s 1998 purchase of the Garwood water rights,” said Clara Tuma of LCRA.

Today, firm customers pay $151 per acre-foot, compared with $28 and $38 per acre-foot interruptible users pay, Tuma said. Garwood users pay $32.81, including delivery costs, for water. When the Lakeside and Gulf Coast irrigation districts receive water, customers pay $38.53 and $28.52 respectively, according to LCRA documents.

Griffin said the firm and interruptible users should be paying different amounts because firm customers pay a premium for a guaranteed supply of water, but added that the low prices for rice farmers also had to do with political clout on the LCRA board.

“Agriculture has a voice on the board,” Griffin said. “I suspect if they didn’t, they would be paying higher prices.”

Irrigation district owners benefited handsomely from selling their water rights, but the arrangement that made them interruptible users in the water management plan was the first sign of trouble for rice farmers, Griffin said.

While political clout—downstream interests made up about a third of the board and still do today—had wrangled cheaper prices, the court settlement in 1989 had also established a guaranteed water supply for a rapidly growing urban area.

“The writing was on the wall for what would be happening over time,” he said.

The LCRA’s water management plans have been periodically updated from the 1989 document. A 16-member advisory committee recommends amendments to the 15-

member LCRA board, which the board then votes on and sends to the Texas Commission on Environmental Quality for approval. The advisory committee is made up of members representing cities, industries, environment, lake and area businesses and agriculture.

Part of running the water management plan is assessing needs of population growth, which in Austin has continued to boom.

Census data report that 842,750 people lived in the city in 2013. The greater metropolitan area, including suburbs like Round Rock, had a population of nearly 1.3 million. The city demographer's office estimates that 110 people are moving to the city each day. The metro population is growing by 60,000 annually.

City demographer Ryan Robinson said that population trend is expected to continue with one caveat: Growth could slow slightly as other cities around the country creep out of recession. Regardless, he said, Austin is still the fastest growing city in the country.

"That's a trend that's expected to continue for at least another three or four years," Robinson said.

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Rice production in the lower river basin has been on the decline for decades, but the drought accelerated the trend. In 2010, 30 percent of the agriculture grown in this three county area was rice. Now, that's down to 14 percent, according to the Texas Agrilife Extension office in Wharton County.

Some former rice farmers are now growing row crops, including corn and grain sorghum, which don't require flood irrigation. Farmers create a two to three inch flood over their field to grow rice.

When drought ravaged the lakes in 2011, the LCRA issued an emergency order, which set the trigger level for cutting off water to downstream farmers to 850,000 acre-feet. The trigger level is the amount of combined water that must be in Lake Travis and Lake Buchanan in order to send water down the river. According to the emergency order, which was requested by the LCRA and approved by the TCEQ, if the lakes combined had fewer than 850,000 acre-feet of water then releases would be cut off to the Lakeside and Gulf Coast irrigation districts.

The lakes are full at about 2 million acre-feet of water. The LCRA has a series of trigger levels in its plan at which the agency can begin limiting some releases to interruptible users. The limits begin at 1.4 million acre-feet in the lakes and end in emergency cutoff to downstream farmers at 850,000 acre-feet, the LCRA said.

In March 2012, the lakes hadn't reached 850,000 acre-feet, and the LCRA halted releases to downstream farmers.

The LCRA has contended that the decision came down to drought.

"We can plan for the future, but we can't make it rain," Tuma said. "Right now we're in the midst of dealing with an event where you don't know when it's going to be over and you have to plan accordingly."

Sansom, the Texas State University water expert, agreed that the decision came down to drought, but added that politics had played a role. If population and economic growth had not so far exceeded growth downstream, the decision might not have been so absolute, he said.

"Reasonable people argue that they made the right decision, but once again it's just a reflection of the changing population dynamics and economics that have unfortunately overwhelmed the rice farmers," he said.

The interests of users upstream had the louder and more influential voice, he said. He said the trend was one that would continue and perhaps eventually completely cut off all water permanently for rice farmers.

“It may ultimately be that rice farming becomes unsustainable in Texas, but we can at least try to manage our resources by some other means than big dogs eat first, which is what this looks like,” he said.

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At a March 2014 Texas Farm Bureau meeting in Columbus, the seat of Colorado County, a roundtable of rice farmers said population growth upstream was threatening future water supply more than drought.

The point that farmers kept repeating was that water management plans needed to be made with all users in mind. Their influence in the construction of the lakes was evidence that they had a stake in the water, they said.

“The lower basin influence can be seen all over the place up there,” Timothy Gertson said. “The dams were built to protect us down here and keep Austin from flooding. That’s some of the bitterness in the situation because the water used to be ours.”

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The 15-member, government-appointed board of the LCRA is made up of representatives from the 10-county river basin and electricity company representatives, according to the LCRA.

A third of the board represents downstream interests, which have reliably voted in favor of rice farmers on water issues. LCRA watchers said the board has tried to referee the

competing interests, but the organization and sheer volume of upstream groups has overwhelmed the dialogue on water.

Upstream communities and area representatives, including Sen. Troy Fraser, a Horseshoe Bay Republican, and Sen. Kirk Watson, an Austin Democrat, have opposed the cheap water to farmers.

The drought has taken a toll on the communities around the lakes. Business has dried up at lakeside restaurants and marinas. Property values on the lake have plummeted. More than 200 people have lost their jobs in the tourism and recreation industry, according to the 2011 Lake Travis Economic Impact Report.

“What has really ignited this fire is you’ve got the city of Austin and lakefront interests who have an economic stake in how much water is retained in these lakes, and they’ve reached out to Sen. Fraser and Sen. Watson and got them on their side,” said David Foster, president of the Austin environmental advocacy group Clean Water Action. “The politics of it will tilt the playing field to the upstream users.”

The LCRA is still operating under its emergency order, but the board has proposed price hikes and increasing the amount of water required in the lakes before releasing water to farmers. The proposals are under review by the TCEQ in the 2012 water management plan. The agency is moving forward on its plan to add 100,000 acre-feet of water to its strapped water supply. Ninety thousand acre-feet would come from a prospective off-channel reservoir in Wharton County.

The proposals have ignited a heated debate over water throughout the river basin.

Rice producers have pushed for lower trigger levels, while people in cities and towns upstream have urged the LCRA to retain water in the ravaged lakes. Both sides have opposed water rate hikes. The upper basin attributed the price hikes to decades of cheap

water deliveries to farmers. Farmers have supported a possible off-channel reservoir in Wharton County, but people upstream are worried they will bear the cost of construction.

Early in 2014, the LCRA proposed an increase in water rates. Beginning in 2015, the cost would be upped to $175.46 per acre-foot for firm customers, the LCRA said. The irrigation districts downstream would see varying water rate increases, too: Gulf Coast would pay $48.45, up from $28.52; Lakeside would pay $50.32 from $38.53; and Garwood would pay $41.98, currently at $32.81.

Gertson said a small increase is expected and could be manageable when water returns to the lakes. He wouldn't provide a price that farmers would be willing to pay, but said firm water rates would not be feasible. "It's out of question, we simply can't do it," he said.

That's because Texas rice growers are minor players in the international, and even national, rice market. The state ranked sixth in the U.S. for rice production in 2013, according to the USDA. The U.S. ranked 13th in world rice production in the same year.

Upstream representatives protested the rate increases, too. State Sen. Troy Fraser, a Horseshoe Bay Republican, lambasted the proposal, calling it a cover-up for bad business practices. He said he opposed proposals for a downstream reservoir in Wharton County.

"I'm concerned the LCRA has made some very bad business decisions and they're attempting to balance the books on the back of my constituents," Fraser said at an April 2014 meeting over water rate increases.

The LCRA's relationship with rice farmers began when the area was still an agrarian society, but in 1988 the courts told the LCRA to reprioritize with upstream interests in mind, he said.

“The court was telling them to change what you’re doing. You’re not an agrarian society anymore, and you have an obligation to the population growth of the people in Central Texas and their industrial growth,” he said. “The LCRA has refused to recognize that.”

Another subject of hot debate has been the trigger level for cutting off water to interruptible users, namely the rice farmers. The trigger level, the minimum water required in the lakes to release water to downstream farmers, is proposed by the LCRA and voted on by the TCEQ.

In November 2013, the LCRA board proposed a change to the water management plan that would increase the trigger level for cutting off water to 1.1 million acre-feet of water. This means the agency would not release water to most downstream farmers—the Garwood irrigation district would still receive water—unless the lakes held 1.1 million acre-feet of water, or roughly 55 percent capacity.

In February 2014, two administrative judges recommended that the trigger level be upped to 1.4 million acre-feet, or about 70 percent full.

Days after the judges’ ruling, the TCEQ met to vote on the trigger level. Lyn Clancy, counsel for the LCRA, told TCEQ commissioners that her agency did not see a need to increase it to 1.4 million acre-feet. The 1.1 million acre-feet level the LCRA had proposed was sufficient to protect upstream interests, she said.

TCEQ commissioners ultimately voted not to set a trigger level, stating that it was unnecessary because the lakes would not reach any of the proposed levels before the March 1 deadline for water releases.

The agency will revisit the issue later this year to determine the minimum amount needed in the lakes to allow water releases to downstream farmers.

Rice farmers have testified at agency hearings to keep the trigger level at 850,000 acre-feet. The lakes currently hold less than 800,000 acre-feet of water. That trigger level would better the farmers' odds at receiving water next year.

"We didn't want the 1.4 million [acre-feet] trigger level because it would have set precedent," Timothy Gertson said during a March Texas Farm Bureau meeting.

Communities upstream have asked for a trigger level of at least1.1 million acre-feet of water to give the lakes time to recover before releasing water to downstream farmers.

Austin Water Utility attorney Ross Crowe said the TCEQ and the LCRA needed to take a "conservative approach in allocating water and adopt a 1.4 million acre-feet trigger level" because drought could continue in Central Texas for many years.

"The water supply simply cannot be replaced any time soon," Crowe told TCEQ commissioners in the February 2014 meeting.

At another February hearing on trigger levels, Sen. Watson, an Austin Democrat, pushed for the TCEQ to put a requirement in the water management plan that the lakes must hold at least 1.1 million acre-feet before releasing water downstream.

"In the time of an historic drought of unknown duration, the lakes, the firm water customers, and a major Texas city with the population and economy of Austin can't be sustained by what's outlined in the 2010 water management plan," Watson said.

State Sen. Glenn Hegar, a Katy Republican whose district represents Wharton, Matagorda and Colorado counties, has remained quiet on the issue. Hegar is running for statewide comptroller office in November, which puts him in a position of trying not to alienate either side. The only facet of the issue Hegar took a side on was the trigger level because it didn't affect agency spending.

“His position was that the 850,000 acre-feet trigger level was adequate,” his press secretary, Lisa Craven, said.

Hegar has otherwise taken the position that the decision is out of legislators’ hands and will be decided by the LCRA board, she said.

In January 2012, the LCRA board revealed plans for an off-channel reservoir in the lower Colorado River basin to ease demand from the parched Highland Lakes. Last year, the agency spent $18 million to buy property near Lane City for the project, start the permitting process and create the initial design. The project is expected to cost $215 million and completed by 2017.

In normal years, the lower Colorado River basin receives about 10 inches more in annual rainfall than the upper basin, according to the National Climatic Data Center. The project is one way to capture that rainfall.

The LCRA moved forward on the project in March 2014, dedicating $17 million for a final design and the infrastructure needed to move water from the river to the off-channel reservoir. Shortly after, the board voted to authorize an application for a low interest $250 million loan from the state water development board to finance the project.

While water from the would-be downstream reservoir isn’t guaranteed to the rice growers, farmers strongly support the project. Bob Reed, a rice farmer in Matagorda County, called the reservoir the “key to going forward.”

“There’s more and more demand for the water in the area up there,” Reed said. “As irrigators, we still want ours so I think a key piece of that puzzle is creating more water.”

Sen. Troy Fraser, who chairs the Senate Natural Resources committee, has opposed the downstream reservoir. Agricultural users would not pay more than $75 per acre-foot in

the proposed rate increases. That rate would not cover the cost of construction for the lake, he said during an April 2014 LCRA public meeting on water rates.

“The numbers they’ve [LCRA] given me is the water costs $200 per acre-foot to build the reservoir. How are they going to pay for it if they’re charging $75?” Fraser said. “Those numbers don’t work.”

In the same meeting, Karen Bondy, vice president of water resources at the LCRA, said the agency was looking for ways to fund the reservoir without water rate increases to municipal users, though was light on financing details. The LCRA was meeting with the state water development board to discuss the LCRA $250 million loan application, she said.

“We’re also looking at alternative sources of funding, we can’t talk about the details yet because we don’t have all the details,” Bondy said. “Our goal is to not have to pay for the reservoir out of rates.”

Environmental groups have tended to side with the rice farmers for sending water downstream—even in small amounts during drought—because the releases to farmers help maintain the health of the lower stretch of the Colorado River and Matagorda Bay.

The groups, including national organizations like the Sierra Club and local groups like Austin-based Clean Water Action, have taken the stance because they don’t want authorities to act in a way that would cut off water releases to the lower Colorado River basin.

“Humans are not the only ones that dependent on these flows,” Foster said.

The rice farmers’ fields create wetlands for migratory boards, and fish in Matagorda Bay benefit from runoff from irrigation. The act of sending water downstream also keeps the flow of the river healthy, he said.

Foster said there is more that cities upstream could be doing in terms of water conservation that could make some water available for downstream releases.

“We need to use water smarter, we shouldn’t be tossing it on turf grass that isn’t native in this part of the world,” he said.

Fixing leaky pipes and updating city water infrastructure is one area where cities could conserve, he said.

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Farmers in the lower Colorado River basin have long benefited from generous federal subsidies. A new farm bill passed in 2014 will add money to the subsidized crop insurance pot, but eliminate direct payment subsidies.

The federal Risk Management Agency, which oversees crop insurance, was not expected to make a decision until June 2014 as to whether rice farmers who aren’t receiving water will be eligible for crop insurance payouts.

Taxpayer-subsidized crop insurance allowed rice farmers to make up for at least 55 percent of their losses in the last two years, and some insurance companies paid out more. Rice farmers who planted a different crop, such as corn, milo or soybeans, on their land could not collect insurance claims for rice.

Every five years, Congress passes a farm bill that dictates the nation’s agriculture, food, conservation and forestry policy. It lays out terms for the subsidies and federal crop insurance; the Supplemental Nutrition Assistance Program, commonly called food stamps; and guidelines for environmental stewardship, including conservation and foresting practices.

Farm subsidies are hotly debated. The majority of subsidies go to wealthy farmers, agricultural landowners and large agribusiness. People who don't farm but own land that was once used to grow a crop have received millions in direct payments.

"The system is completely backward," said Craig Cox, senior vice president of Environmental Working Group, an agricultural policy organization.

Until 2014 year, direct payments, which total about $5 billion each year, went to farms and individual farmland owners who have land that is used or was previously used to produce eight different crops, including rice.

The Texas Farm Bureau in Columbus estimated that about two-thirds of the rice farmers in the three counties are tenant farmers, meaning they rent the land to farm their crops. Depending on their leases, the farmers may not receive the direct payment subsidies, according to the Texas Agrilife Extension office in Matagorda County, but growers, regardless of ownership, are eligible for crop insurance and disaster relief subsidies. [I included this to clarify that not all rice farmers received direct payments under the previous farm bill.]

There's a mixed bag of federal subsidies to farmers: direct payments; countercyclical payments, paid out when the price of rice falls below the price set in the farm bill, which in recent years has been higher than ever due to higher crop prices; and marketing loans, which allow farmers to either sell the crop to the government or take a loan on a crop and hang on to it until prices are higher and repay the loan. The new farm bill, which passed in February 2014, eliminated the direct and countercyclical payments.

In Wharton, Colorado and Matagorda counties, 2,975 recipients, a mix of entities and individuals, received a total of more than $700 million in government farm subsidies for rice between 1995 and 2012, according to Environmental Working Group (EWG) data obtained from the federal Department of Agriculture.

Texas ranked first in the U.S. for farm subsidy payouts, though just 29 percent of farms received the payments, according to the USDA.

The state also spent more than any other in farm lobbying, according to data from the Center for Responsive Politics.

“The rice lobby, the corn lobby, the soybean lobby and the cotton lobby all invest a tremendous amount of money and time to protect the status quo as much as they can,” Cox said.

Between 1995 and 2012 in the same three counties, taxpayers paid $177 million for crop insurance for rice farmers, according to EWG data.

The USDA’s Risk Management Agency oversees the crop insurance industry, which is private but heavily subsidized.

Taxpayers subsidize the insurance in three ways: Taxpayers cover about 60 percent of the premium for farmers; claims from crop lost to weather or price shortages are mostly covered by the government; and private crop insurance companies receive federal funding.

Because rice is a relatively low risk crop—it’s already flooded, so heavy rainfall doesn’t hurt the crop—most rice farmers only purchase catastrophic crop insurance. The cost for farmers is about $300 per year. Taxpayers pay the remaining premium, Cox said.

“Having some sort of risk management is really important to farmers, but the real policy question is how much taxpayers should burden,” Cox said. “The view of most economists concludes that the way the program currently operates taxpayers are paying far too much for farmers.”

Gertson Farms Partnership, made up of about 10 family members with an annual revenue of $1 million, according to Mantra, a company profile website, owns about 80 percent of the land it farms, Ron Gertson said. Ron Gertson is Timothy's dad and has been farming in Wharton County for nearly four decades.

Their enterprise received nearly $12 million from the federal government between 1995 and 2012, according to the EWG database. Direct payments made up about $3.8 million of the subsidies, while the rest were disaster relief payments for failed crops and conservation program subsidies used to help finance equipment.

Congress passed the latest farm bill in February 2014 after months of squabble, mainly over cash assistance for food to the poor. The Republican-controlled House wanted to make huge cuts to the food stamp program, while keeping generous farm subsidies in the bill.

The bill ended direct payment subsidies for all farmers but expanded crop insurance subsidies by $7 billion.

Under the new law, taxpayers will subsidize 62 percent of a farmer's premium for crop insurance, at a cost of about $5.6 billion each year. In addition, the private crop insurance providers stand to receive about $1.3 billion from taxpayers each year, according to the Environmental Working Group.

There is no limit to what can be paid out in claims in the bill. Cox said this could mean far more spending for subsidies.

The crop insurance subsidies would cover losses for farmers in the event of natural disaster or if rice prices fall below the target price, according to the USDA.

John Shea, public affairs director for the USDA Risk Management Agency in Washington, D.C., said it was yet to be determined whether the new crop insurance

subsidies would cover rice farmers' losses from the current drought. The decision is expected to come by June.

Bob Reed, a rice farmer in Matagorda County, said he didn't support the former direct payment system because he believed it put some rice acreage out of production.

"Landowners could collect a direct payment on rice without actually planting the rice," Reed said. "They didn't have to plant a crop and that put a lot of land out of production."

Timothy Gertson criticized direct payments for the same reasons, but supported the new farm bill because it put more emphasize on price supports, he said.

"I generally like the way the farm bill went because it's much more risk management based," Gertson said.

While the decision from the Risk Management Agency won't come until June on whether to cover drought under crop insurance, the decision could be precedent setting in Texas and around the country.

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Irrigation wells have saved some of rice farmers, but others have needed to adapt to new crops, including corn, grain sorghum, soybeans and milo, or have left the business completely.

The long-term outlook for rice farming is not encouraging.

In March 2014, the Intergovernmental Panel on Climate Change released a report that said global warming would create water shortages around the globe, among other warnings.

“Climate change over the 21st century is projected to reduce renewable surface water and groundwater resources significantly,” the report found.

In the U.S., Texas is one of the states most drastically affected by climate change. Extremely dry periods are expected in the long term because of climate change. And population in the state is predicted to increase 82 percent by 2060, placing more demands on resources, according to the Texas 2012 State Water Management plans.

“We’re one of places in the globe where we might get both more droughts and more floods from climate change,” state climatologist John Nielson Gammon said.

Gammon said annual rainfall would likely not increase in the long run, though there could be intense storm events, and temperatures are expected to increase.

“That affects drought because you have greater water evaporation, escalated water demand and lower stream flow,” he said.

Water demand in Texas is predicted to increase 22 percent by 2060, according to the state water plan. The demand projection doesn’t keep pace with the population predictions because of expected declines in agricultural irrigation and more emphasis on conservation in cities, the report said.

Sansom said the trend of population growth coupled with decreased agriculture, is particularly true in the Colorado River basin.

“The LCRA episode is a very stark indicator of that trend. In fact, it’s the poster child for it,” he said.

The most recent 2012 LCRA water management plan, still awaiting approval from the TCEQ in April 2014, spelled out its projections for future water demand. The LCRA

estimates firm water demands, including cities and industries, on the lakes and river could increase from 88,606 in 2010 to 494,134 in 2030.

Ron Kaiser, a water policy professor at Texas A&M University, said if current predications play out as expected then rice farmers will likely not get water for the next three to four years. If water demands or policies within the LCRA water management plan change, then the water cutoff may be more long term or permanent.

The loss of rice production from the water cutoff has dried up business in the local economies. Rice related industries have fared worse than farmers, he said.

“Farmers aren’t going to lose their land, they’re going to grow another crop,” he said. “The most impacted are all the industries and the services that provide rice seed, rice harvesting, rice equipment. Those people have been and will be the most affected.”

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Going into the third year without water from the river, some rice farmers have adapted. Nearly a third of the rice farmers have switched to irrigation wells to continue planting rice. Others have switched to less profitable row crops, including corn, soybeans and milo.

Kevin Hoffman, a rice and row crop farmer in Eagle Lake, attempted to use pivot irrigation instead of flood irrigation to grow rice for two years. Pivot irrigation equipment is similar to a sprinkler system. The large structures are mobile and can move across the rice paddy to evenly water the crops.

Pivots use less water than flood irrigation, which creates a two to three inch flood over the rice field to kill grass and weeds.

“I had about the same inputs as normal and had about half the yield,” he said. “We tried everything we could think of to conserve water and just couldn’t make it work.”

As of March 2014 in Colorado County, 100 wells had been registered with the county’s groundwater conservation district for rice farming, according to data from the district. The district didn’t track how many wells were actually drilled.

In Wharton County, the Agrilife Extension office estimated that between 40 and 50 wells had been drilled in the last three years.

Irrigation wells run about $400,000 to $500,000, and pumping the water is more costly than water from the river. Ron Gertson estimated an acre-foot of water from a well costs between $100 and $120, depending on diesel fuel costs. “It’s a stretch to make it work,” he said.

The irrigation wells feed off of the Gulf Coast aquifer, which runs the length of the Texas coast. There are no pipelines planned at this time to divert water from the aquifer to other parts of the state, and the aquifer has a “healthy” amount of water, according to Sansom, the water historian.

The Gertsons have attempted to grow other crops as well, including sesame and grain sorghum.

“My family has planted everything that you could imagine,” Timothy Gertson said. “We have rice farmers in town planting other crops, anything that we can think of to make our land profitable. We’re not just sitting around trying to grow rice over and over.”

For the last 26 years, Ron Gertson said he has been focused on ways farmers can reduce their water use. He and other farmers in the area have laser leveled their fields. The process is similar to preparing a building foundation and allows farmers to use 20 to 25 percent less water.

Gertson said that although water conservation has always been on his mind, he never would have predicted the dire situation farmers would be in now. “We grew up without an inkling that this could be any issue,” he said. “Our only hope for the future is being able to raise rice with less water.”

The irrigation wells have softened the blow, but the rice community along the Colorado is still reeling from the acres lost.

More than 1,000 people lost their jobs in the rice industry, according to a study conducted by Texas A&M Agrilife Extension Service. The same study found the state lost nearly $188 million in economic activity in 2012, which it attributed to the drought and subsequent water cutoff for rice farmers.

The first to go were those who worked on farms. With few alternative job options in the area, Mary Pharr, the mayor of Eagle Lake, a town in Colorado County, said most farmhands who lost their jobs moved to the oil and gas fields for work.

Then the supporting industries took a hit. Many of the towering rice dryers and grain elevators went partially used. Planes once used for crop dusting were grounded. Revenues at a few businesses sunk to 30 percent of where they were a few years ago, and some businesses shut their doors, Pharr said.

From Austin, the road into Eagle Lake, a town of about 3,000 in Colorado County, is lined with beautiful, old Victorian-style homes. Many have been there since the early 1900s. This is the area where many early Gulf rice farmers settled a history touted at the local museum where equipment used to sow the first crops is showcased.

But this is not a wealthy town. The median income in Eagle Lake hovers just above the national poverty line.

In downtown Eagle Lake, there's a post office on the main square, an antique shop, a barbershop, the Chamber of Commerce and an old-time pizza parlor. On the west side of downtown is the library, named after the Wintermann family, who were one of the first rice growing families and still have farms in the area.

Across the street from the library is a plain, red brick building with silver metal letters to spell out "AREA RICE MARKETING." Tom Kallina bought the company in 1997 and is the middleman between farmers and mills.

Farmers, Kallina's clients, count on him to sell their rice to one of four mills in the state. Mills wire him the money for the rice, which he then uses to pay out any shareholders involved in producing the rice, including the costs for transportation, water, drying, storage and any loans with the bank, before paying the rest to the farmer.

The majority of Texas rice farmers use cash markets instead of futures markets, which allow producers to sell rice in the commodities market at a set price for a future date, said grain economist Mark Welch.

In 2012, Kallina did about 30 percent of his usual business, he said. It picked up in 2013 because of well-drilling in the area, but he estimated that his business is still at 50 percent of where it was three years ago. Last year, he laid off his only employee because of the slump in business, he said.

He said he has about 15 clients now, down from 35, because some growers are not planting crops.

"We're having a casino night this weekend to raise money for the chamber, and they're calling on me to make donations. I want to, but I'm not making enough money here to put my kids through school, so it's hard to continue to support the community when you just don't have the resources to do it anymore."

Rice Belt Warehouse, a dryer and storage facility headquartered in El Campo, laid off about 25 percent of its full-time staff due to the drought, said president Dick Ottis. The company started back in 1962 and has five locations in the three counties with annual revenue of $8.5 million, according to Manta.

Since the water shutoff in 2012, one facility in Matagorda County has closed to rice production. To keep the facility running, Ottis switched to other commodities—corn, milo, wheat and soybeans. He estimates it cut profits by 50 percent at that plant alone. The other facilities have switched commodities, too, though still take in some rice.

Employees have paid the biggest price. Since 2012, Ottis, 68, said he has laid off 16 full-time employees, about 25 percent of his staff. He cut back the number of seasonal employees he hired during the summer by about nine. The average age of the full-time employees is 52-years-old, he said.

Now Ottis said he is looking into other scenarios for staying in business, including: cutting operation hours, closing during the slowest part of the year, diversifying into other commodities and even leasing out some of its warehouses to other industries.

He said he isn't confident about the future. "This state is growing leaps and bounds, and those people need water and will continue to tax the reservoirs," he said.

The effects of drought have extended to some not-so-obvious areas.

Mike Lanier was the superintendent for the Rice Consolidated school district in Colorado County for seven years before he retired in 2012. He said he still worries about school finance.

Schools are funded in two ways: weighted average daily attendance and local property tax revenue. Texas provides close to $6,000 per student in Weighted Average Daily Attendance funding at Rice Consolidated, according to the Texas Education Agency.

In some ways, the schools have already been affected by the lack of water. Information from the TEA showed that enrollment in public schools has rapidly increased in the last five years. At Rice Consolidated Independent School District, attendance has dropped every year of the past five.

While there's no way to directly relate it to the water cutoff, Lanier attributed part of the loss to declines in farming. "Those jobs reduced, and those families have to go somewhere to make a living, so you lose those kids," he said. "It's a snowball rolling down the hill that just gets bigger and bigger and bigger."

Schools rely on local property taxes to keep the lights on. Property taxes for rice farmland are $345 per acre and $469 per acre, depending on how often the crop is rotated (farmers do not plant all of their acreage every year), according to the Colorado County Central Appraisal District.

Pastoral land, land that doesn't produce crops but could be used for cattle grazing, cost $94 per year in property taxes, which would bring in less money for the schools.

"Schools get about $600,000 per year from rice farming," said Bill Mitchell, chief appraiser at the Colorado County Central Appraisal District.

Though the land is assessed every year, the value is based on a five-year history. No farmland has been reclassified, but that could change for farms that don't produce crops in the next three years.

"It's a wait and see," he said. "We've been talking with the comptroller office to see how we're going to handle property values during the drought, but we don't have an answer yet."

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With so many demands for water on the lakes, increasing population in urban areas and a drought with no end in sight, everyone is looking for ways to conserve.

Cities have implemented watering restrictions for the lawns and created new conservation programs. Farmers, too, have searched for ways to stretch the resource.

Rice farming in the lower Colorado River basin dates back to the late 1890s, but economists and water experts wonder whether the industry will last another century.

“Long-term there’s a real question whether that level of irrigation is a sustainable practice even without drought,” said Andrew Sansom, water historian at Texas State University. “But I think that’s a question that as a society we’re going to have to answer.”

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